CLAIMS

1. A method for resource allocation in a packet transmission
network   including   at   least   one   link   (19),
c h a r a c t e r i z e d by the following steps:

5   - determining link resource status;

- if link congestion is determined then

(a) determining if it is possible to allocate more link
capacity;

(b) allocating more link capacity when it is possible to
10   allocate more link capacity;

(c) alleviating link congestion using Active Queue
Management when it is not possible to allocate more
link capacity.

2. A method for resource allocation according to claim 1,
15   c h a r a c t e r i z e d by

- defining in a buffer (13, 14) for said at least one
link (19), a congestion threshold (Th) for packet queue
size within said buffer (13, 14); and

- using said congestion threshold (Th) to detect link
20   congestion when the packet queue size exceeds said
congestion threshold (Th).

3. A method for resource allocation according to claim 2,
c h a r a c t e r i z e d by

- adjusting the congestion threshold (Th) depending on
25   link capacity.

4. A method for resource allocation according to claim 2 or
3, c h a r a c t e r i z e d by

- adjusting the congestion threshold (Th) depending on
whether or not a packet is dropped/marked.

30   5. A method for resource allocation according to any of the
claims 2-4, c h a r a c t e r i z e d by

- adjusting the congestion threshold depending on buffer delay for a packet in the queue.

6. A method for resource allocation according to any of the claims 2-5, c h a r a c t e r i z e d by

- defining in the buffer (13, 14) a maximum threshold (Th_{AQMmax}) and a minimum threshold (Th_{AQMmin}) for packet queue size within said buffer (13, 14).

7. A method for resource allocation according any of the claims 1-6, c h a r a c t e r i z e d by

- allocating link capacity by changing from a common channel to a dedicated channel.

8. A method for resource allocation according any of the claims 1-6, c h a r a c t e r i z e d by

- allocating link capacity by changing from a channel with a low bit rate to a channel with a higher bitrate.

9. A method for resource allocation according to claim 1, c h a r a c t e r i z e d by the following steps

- determining cell resource status;

- if cell congestion is detected then

(a) determining that it is necessary to switch down bit rate or rates in at least one link (19);

(b) alleviating link congestion using Active Queue Management (16, 17);

(c) switching down said bit rate or rates.

10. A method for resource allocation according to claim 9, c h a r a c t e r i z e d by

- alleviating link congestion for all links (19).

11. A method for resource allocation according to claim 9, c h a r a c t e r i z e d by

- alleviating link congestion only for the links (19) where link congestion is likely to occur.

12. A method according to claim 1, c h a r a c t e r i z e d by the following steps

- if low usage of a link (19) is detected then

(a) determining if it is possible to decrease the link capacity without problems;

(b) allocating less link capacity, when possible.

13. A method according to any of the claims 1-12, c h a r a c t e r i z e d by

- alleviating link congestion by dropping or marking packets.

14. A method according to any of the claims 2-13, c h a r a c t e r i z e d by

- using Active Queue Management separately for each buffer (13, 14).

15. A method according to any of the claims 2-13, c h a r a c t e r i z e d by

- using a general Active Queue Management for a number of buffers (13, 14); and

- controlling the average traffic in the links associated with said buffers (13, 14).

16. An arrangement for resource allocation in a packet transmission network including at least one link (1), c h a r a c t e r i z e d in that the arrangement includes a resource management (18) arranged to determine link resource status and arranged, if a link congestion status is determined, to determine if it is possible to allocate more link capacity, to allocate more link capacity when it is possible to allocate more link capacity, and to enable to alleviate link congestion using Active Queue Management (16, 17) when it is not possible to allocate more link capacity.

17. An arrangement for resource allocation according to claim 16, c h a r a c t e r i z e d in that the arrangement includes a buffer (13, 14) for said at least one link (19),

said buffer (13, 14) including a congestion threshold (Th) for packet queue size within said buffer (13, 14), and in that said congestion threshold (Th) is arranged to detect link congestion when the packet queue size exceeds said

5   congestion threshold (Th).

18. An arrangement for resource allocation according to claim 17, c h a r a c t e r i z e d in that the congestion threshold (Th) is arranged to be adjusted depending on the link capacity.

10   19. An arrangement for resource allocation according to claim 17 or 18, c h a r a c t e r i z e d in that the congestion threshold (Th) is arranged to be adjusted depending on whether or not a packet is dropped/marked.

20. An arrangement for resource allocation according to

15   any of the claims 17 to 19, c h a r a c t e r i z e d in that the congestion threshold (Th) is arranged to be adjusted depending on buffer delay for a packet in the queue.

21. An arrangement for resource allocation according to

20   any of the claims 17 to 20, c h a r a c t e r i z e d in that the buffer (13, 14) includes a maximum threshold (Th_{AQMmax}) and a minimum threshold (Th_{AQMmin}) for packet queue size within said buffer (13, 14).

22. An arrangement for resource allocation according to

25   claim 16, c h a r a c t e r i z e d in that the resource management (18) is arranged to determine cell resource status, and arranged, if cell congestion is detected, to determine that it is necessary to switch down bit rate or rates in at least one link (19), to enable to alleviate

30   link congestion using Active Queue Management (16, 17), and to switch down said bit rate or rates.

23. An arrangement for resource allocation according to claim 16, c h a r a c t e r i z e d in that the resource management (18) is arranged, if low usage of a link (19) is detected, to determine if it is possible to decrease the link capacity without problems, and to allocate less link capacity, when possible.

24. An arrangement for resource allocation according to any of the claims 17-23, c h a r a c t e r i z e d in that Active Queue Management is arranged to work separately for each buffer (13, 14).

25. An arrangement for resource allocation according to any of the claims 17-23, c h a r a c t e r i z e d in that Active Queue Management is arranged to work for a number of buffers (13, 14) and to control the average traffic in the links (19) associated with said buffers (13, 14).